July 2002 Monthly Progress Report

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Task Assignment 99-001-00
July 2002

MANAGEMENT
GSFC ATR - Dr. J. Green
Raytheon ITSS Task Leader - L. Mayo
Raytheon ITSS Group Manager - L. Mayo

TASK OBJECTIVE: The non-personal services required under this task include performing all necessary functions to manage Raytheon ITSS contract staff supporting the Space Science Data Operations Office (SSDOO). The Raytheon ITSS management team will meet with the SSDOO management team to discuss significant events and contract highlights to be presented to upper management and Headquarters, and current contract issues and concerns.

SIGNIFICANT EVENTS:

• Staff held weekly senior staff meetings.

• Staff began development of Science Data Centers Symposium:
- contacted University of Maryland conference center
- developed LOE plan

• Staff returned unused DCE equipment and inventoried remaining DCE equipment.

• Staff submitted EPO proposal with D.C. Space Grant.

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Curator: *Natalie Jaquith*
Responsible Official: *Dr. Joseph H. King, Code 633*
Last Revised: *Monday, 12-Aug-2002 15:05:22 EDT [NAB]*

Task Assignment 99-003-00
July 2002

ASTROPHYSICS MISSION SUPPORT SERVICES
GSFC ATR - Dr. N. Gehrels
Raytheon ITSS Task Leader - Dr. J. F. Cooper
Raytheon ITSS Group Manager -

TASK OBJECTIVE: This task provides support and consultation services for the Compton Gamma Ray Observatory (CGRO) project scientist in areas of data management, analysis, and archiving for CGRP and for the HIC experiment on the Galileo spacecraft. This support includes attending GRO Science Working Group meetings, aiding target-of-opportunity decisions, monitoring the health of the spacecraft, and presenting GRO papers at scientific meetings. In addition, this task will provide consultation on data products from the HIC.

SIGNIFICANT EVENTS:

1. Model calculations of HIC ion trajectories and directional anisotropics for the J0, I24, and I27 flybys of Io were recomputed with reduced acceptance cone angles for the singles and doubles mode of the LET-B sensor. Results for the J0 flyby showed improved agreement with HIC flyby data and the results for other flybys are under review.

2. An oral report on the Task Leader's Europa decadal survey study was presented at the Magnetospheres of the Outer Planets meeting at APL/JHU.

3. The Task Leader discussed potential prospects for a future instrument development proposal for high resolution spectral and spatial imaging in high radiation environments with J. Eraker (Ball Aerospace & Technical Corporation). This proposal would be a follow-on effort based on suggestions made in the Europa panel report. Task staff would provide expertise in science requirements and modeling of Europa's radiation environment.

4. Task staff reviewed EGRET files R17042695-728.

UPCOMING MILESTONES/EVENTS:

1. A research paper on HIC data analysis and modeling for the Galileo Orbiter flybys of Io is to be completed within the next few months.

2. Presentations on task-related research will be given at the October 2002 COSPAR meeting in Houston and at the December 2002 Fall AGU meeting in San Francisco, California.

RELATIONS TO OTHER TASKS: Work on this task is being supplemented by support from the SSDOO project and the two active Jovian System Data Analysis Program contracts with Raytheon ITSS. Funding from another contract on radiolytic chemistry modeling for Europa from the NASA Planetary Atmospheres Program is expected to begin later this year.

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Curator: *Natalie Jaquith*
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Last Revised: Monday, 12-Aug-2002 15:10:17 EDT [NAB]

Task Assignment 99-101-00
July 2002

AMASE-MOCHA-CONCAT DEVELOPMENT
GSFC ATR - Dr. C. Cheung
Raytheon ITSS Task Leader - E. Shaya
Raytheon ITSS Group Manager -

TASK OBJECTIVE: This task provides support for the development of the object -oriented data base multispectral astrophysics data catalog, AMASE (Astrophysics Multimission Archive Search Engine) as an interface to NASA's astrophysics data holdings. This effort is a collaborative one with the University of Maryland (UMD) Computer Science Department, and frequent interactions with UMD counterparts are expected. The general goal for this performance period is to develop the AM ASE prototype into an astronomical search and discovery engine by expanding the data contents and augmenting the search capabilities. Work includes incorporating astrophysics data from other wavelength bands to complete the electromagnetic spectrum and developing procedures to access remote relational data bases.

SIGNIFICANT EVENTS:

a. DSA:
   - Staff attended weekly DAPFA meetings.
   - Staff worked on XML telemetry language for OMG RFP.
   - Staff worked on Executive Summary slides of DAPFA.
   - Staff worked on DAPFA in depth slides.
   - Staff worked on top level data model schema.

b. DSE:
   - Staff attended general DSE weekly meetings.
   - Staff attended DSE demonstration weekly meetings.
   - Staff developed plotting routines for DSE science.

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Task Assignment 99-102-00
July 2002

ADC
GSFC ATR - Dr. C. Cheung
Raytheon ITSS Task Leader - J. Gass
Raytheon ITSS Group Manager ·

TASK OBJECTIVE: This task operates the Astronomical Data Center, develops multispectral astrophysical metadata interfaces, and provides FITS data format support for the SSDOO.

SIGNIFICANT EVENTS:

• Staff corrected several errors in the Delta-M catalog and made publicly available for distribution.

• Staff answered six science/technical questions.

• Staff continued work on converting legacy datasets to XML, processing 47 catalogs and 63 journal tables to XML using the legacy pipeline.

• Staff corrected units: factor validation errors in six datasets.

• Staff split the Tycho catalog into 20 separate files for easier distribution.

• Staff supported NASA Astrophysics Data centers Executive Council (ADEC) discussions that involved ADC activities. In particular, staff participated in the ADCCC/ADEC Telecon on July 26, 2002.

• Staff prepared a comprehensive technical+cost plan for continued task activities in FY2003 and beyond. The plan was given to SSDOO management, for possible inclusion in a GSFC plan to be submitted to the NASA HQ Program Manager.

UPCOMING PLANS/EVENTS/MILESTONES:

• Task personnel will continue work on converting legacy datasets to XML.

• Staff will restart work on SGML-to-XML pipeline.

• Staff will continue human validation of legacy datasets converted to XML.

• Raytheon will produce a tag formatted database containing information about ADC's repository datasets that are not directly related to specific article in the ADS.

• Staff will determine what needs to be done to ADC Web pages into compliance with Section 508 guidelines.

• Staff member plans to attend a Website Section 508 Compliant course on September 26, 2002.

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Task Assignment 99-104-00
July 2002

INFRARED/SUBMILLIMETER/RADIO ASTROPHYSICS DATA MANAGEMENT
GSFC ATR - Dr. D. Leisawitz
Raytheon ITSS Task Leader -
Raytheon ITSS Group Manager

TASK OBJECTIVE: The contractor shall perform the following tasks applicable to each of the NASA astrophysics missions, COBE, IRAS, SWAS, MAP, ISO, SOFIA, MSX, WIRE, SIRTF, 2MASS, and possibly others identified by the government: Planning and Communication, Interactions with Projects, Improving Data Management Processes, Data Processing, Data Archiving and Archive Quality Assurance, Archival Research Support, Miscellaneous, and General Guidelines (as given in the detailed task description).

SIGNIFICANT EVENTS:

• Staff supported NASA Astrophysics Data centers Executive Council (ADEC) discussions that involved Code 630/631 activities. In particular, staff participated in the ADCCC/ADEC Telecon on July 26, 2002.

• Staff prepared a technical+cost plan for continued task activities in FY2003, in conjunction with a similar plan for the ADC Task (task 102). The plan was given to SSDOO management, for possible inclusion in a GSFC plan to be submitted to the NASA HQ Program Manager.

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Last Revised: *Monday, 12-Aug-2002 15:02:32 EDT [NAB]*

Task Assignment 99-110-00
July 2002

AUTONOMOUS TECHNOLOGY
GSFC ATR - Dr. M. E. Van Steenberg
Raytheon ITSS Task Leader - R. Dunlap
Raytheon ITSS Group Manager

TASK OBJECTIVE: The objective of this task is to support the development of a simulation environment that supports autonomous distributed spacecraft control and test science collection techniques using artificial intelligence (AI) technologies. This work is in collaboration with the GSFC's Guidance, Navigation and Control Center and JPL's Automation and Control group. The contractor shall support the following activities and contribute to reports and white papers as appropriate: (a) evaluate Science Quick-Look Analysis Tools (e.g., HEASARC) for use as on-board analysis tools, (b) define Typical Science-Driven Maneuver Automation Requirements, (c) define Typical Science Automation Requirements, (d) define Basic System Architecture, and (e) develop rapidly a prototype to demonstrate key capabilities.

SIGNIFICANT EVENTS: No work was performed on this task during the reporting period.

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Last Revised: *Monday, 12-Aug-2002 15:02:33 EDT [NAB]*

Task Assignment 99-113-00
July 2002

GLAST
GSFC ATR - R. Fink
Raytheon ITSS Task Leader - J. Palencia
Raytheon ITSS Group Manager -

TASK OBJECTIVE: GLAST is a multipartner gamma-ray survey mission with a GO observation component. The ADF will provide a prototype public archive design using Beowulf and other related technology. The prototype will implement the archive design using the Compton Gamma Ray Observatory EGRET data set. The contractor shall provide personnel to support the following tasks: (1) systems administration support of the Beowulf cluster and (2) programming support as requested for implementing the archive prototype.

SIGNIFICANT EVENTS:

- Staff attended the Summer School for High Performance Computing frmm July 8-26, 2002.

- Staff assisted in the final technical review 154-Processor Code 600 Cluster.

- Staff assisted in the system administration of the Linux workstations for the Summer HPC/VSEP guests & students.

- Staff assisted in the system administration of HPC's Beowulf Clusters (MEDUSA, PIVOT).

- Staff assisted in the system administration of Medusa Workstations.

- Staff assisted in the system administration of Glast Beowulf Cluster.

UPCOMING MILESTONES/EVENTS:

- Staff reviews various cluster configuration software (Oscar, Bpbatch, SCE).

- Staff configures the 12-Processor SIMDOG Cluster.

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Last Revised: *Monday, 12-Aug-2002 15:20:34 EDT [NAB]*

Task Assignment 99-115-00
July 2002

SWIFT
GSFC ATR - Dr. R. Pisarski
Raytheon ITSS Task Leader - Dr. E. Pier
Raytheon ITSS Group Manager -

TASK OBJECTIVE: Swift is a multipartner gamma-ray burst detection and follow-up observation mission. The Astrophysics Data Facility (ADF) will provide science data processing pipeline design, development, and operations. In addition, the ADF will be responsible for providing Quicklook processing to the Swift Mission Operations Center (MOC) at Pennsylvania State University (PSU). The final outputs of the pipeline processing will be delivered to the HEASARC at GSFC and to project partners in England and Italy.

SIGNIFICANT EVENTS:

- Staff worked with SSC to debug imagexform tool.

- Staff discussed coordinate transforms with the XRT team to help them write flight software.

- Staff continued network performance tests with Leicester.

- Staff updated demo UVOT and XRT teldef files to correct some bugs.

- Staff worked on a general utility for converting ITOS database files into xing configuration files.

UPCOMING MILESTONES/EVENTS:

- Staff will continue debuging imagexform.

- Staff will integreate HEAdas build 2 into the Swift processing script when the build becomes aavilable from the SSC.

- Staff will work with the BAT teams to make a prototype teldef file and address the special needs of that instrument in the coordinate transform software.

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Task Assignment 99-201-00
July 2002

IMAGE
GSFC ATR - R. Burley
Raytheon ITSS Task Leader - C. Klipsch
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of the IMAGE Mission Data System task are to develop, test, and maintain the IMAGE Web data access and display system, the IMAGE data processing system, and the IMAGE data distribution system.

SIGNIFICANT EVENTS:

- Continued work on section 508 requirements, adding "alt" tags to files.

- Fixed non displaying gifs on ISTP Web pages.

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Task Assignment 99-202-00
July 2002

MAGNETOSPHERIC MODELING AND ANALYSIS
GSFC ATR - Dr. S. Fung
Raytheon ITSS Task Leader - Dr. L. Tan
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: This task calls for (1) the performance of analysis supporting the development of a new generation of trapped radiation, (2) the documentation and analysis support in an ongoing SSDOO research program on the outer magnetosphere, and (3) ISTP campaign coordination.

SIGNIFICANT EVENTS:

1. Task staff wrote and executed a script to convert the files generated by OMNIWeb containing the solar wind and interplanetary magnetic field data into a SQL load file. He further modified the trapped radiation database to allow inclusion of these datasets.

2. Task staff developed a technique to improve the calculation accuracy of "uniformizing" flux (e.g., the omnidirectional flux) of trapped particles when the counting rate data of only one sensor are available. A mathematic approach to calculate the omnidirectional flux in the presence of anisotropic pitch-angle distribution is used in the technique.

3. Based on the poster entitled "CRRES Observations of Rapid Relativistic Electron Flux Increases During Intense Isolated Substorms" (authors: L. C. Tan and S. F. Fung), which was presented in the 2002 AGU Spring meeting, a manuscript with same title has been preparing for future publication.

UPCOMING MILESTONES/EVENTS: Task staff are preparing the material to be included in the talk entitled "Development of a magnetospheric state-based trapped radiation data base" (authors: S. F. Fung et al.) to be presented in the 34th COSPAR Scientific Assembly, to be held in Houston, TX, on October 10-19, 2002.

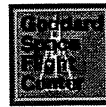Return to Table of Contents Page

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Last Revised: *Monday, 19-Aug-2002 14:02:28 EDT [NAJ]*

Task Assignment 99-203-00
July 2002

SPACE SCIENCE VISUALIZATION FACILITY
GSFC ATR - Dr. R. Kessel
Raytheon ITSS Task Leader - J. Friedlander
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The task of the Space Science Visualization Facility within the SSDOO is to support the SSDOO education and outreach activities, scientific analyses, and IMAGE mission activities. Members of the facility will need to work closely with the space science community in order to create appropriate space science videos, illustrations, and displays and to develop overall approaches and procedures for the maintenance of the task.

SIGNIFICANT EVENTS:

1. Staff illustrated four figures for the Space Science Data Operations Office (SSDOO) Chief for a class at the University of California, Irvine, California.

2. Staff illustrated a caricature of Charlie Vanek for the Space Science Directorate (SSD) to be signed and presented to him at his retirement party.

3. Staff attended the Siggraph Conference held in San Antonio, Texas, July 20-27, 2002.

4. Staff re-rendered previously made video clips to HDTV resolution. Staff was successful in transferring images to HDTV server.

5. Staff worked with Faculty Fellow, Marietta Cameron, to develop algorithm for magnetospheric shell creation using data points generated in IDL software. The programs will be used to automatically generate shells as needed for animations.

6. Staff printed several posters for student interns to be used in final presentations.

7. Staff researched and compiled list of equipment and their justifications for tech funds for fiscal year 2003.

8. Staff designed and printed four posters for 630 booth for celebrate Goddard Day as well as assisting in setting and staffing booth for a large portion of the day.

9. Staff completed first half of video presentation describing Auroral activity for LWS program.

10. Staff has entered the second phase of creating a Web site for the Division of Planetary Sciences of the American Astronomical Society. Initial architectural changes have been made and are awaiting approval. Staff is also creating a new set of online forms for the SECEF Web site.

UPCOMING EVENTS/MILESTONES: Staff will complete LWS video presentation in a short form to be looped in a display. A longer version will also be developed. Staff will complete rerendering of MWMW video clips for HDTV presentation. Staff will create HDTV sequence of IMAGE information.

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Last Revised: Monday, 19-Aug-2002 11:33:50 EDT [NAJ]

Task Assignment 99-204-00
July 2002

SPACE PHYSICS SOFTWARE DEVELOPMENT, SYSTEM MAINTENANCE, AND SPECIAL PROJECTS
GSFC ATR - Dr. R. McGuire
Raytheon ITSS Task Leader - T. Kovalick
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of the space physics development task are to design, develop, document, support, and promote the re-engineering of the SSC Software Systems and the CDAW Graphics Systems. These software systems will support Satellite Situation Center (SSC) Operations, ISTP SPOF, SPDS, STEP, other NASA projects, and the space physics community in general. Accomplishing this objective requires maintenance of the software in both a UNIX and VMS environment, use of appropriate software development tools and methods, development of concise documentation, definition of new magnetospheric field and region models, and communication with scientists and end users both at the NSSDC and in the larger space physics community to ensure that their needs and requirements are being met. This task will work closely with the CDF/graphics task to fulfill its responsibilities. CRUSO in particular will play an important user support role for both SSC and the CDAW Graphics System. It will serve as the first point of contact for users, distribute documentation, answer simple questions, and forward software and science questions to this task and to SSC Operations.

SIGNIFICANT EVENTS:

1. Work on CDAWeb Software: Staff continued testing and modifying the Web pages and cgi scripts in order to make them Section 508 compliant. Staff continued investigating the geographic registration problem long suspected by staff and recently reported by a user of the Polar UVI/VIS image data. Staff corrected the display of two IMAGE EUV virtual variables and operationally installed the new Cluster password scheme files and associated password changing software. Staff sent email to all Cluster known users with their individual username and password and updated various Web pages accordingly.

2. CDAWeb Design work: Staff continued thinking about the various requirements and is formulating an approach.

3. Work on SSCWeb Software: Staff completed their work on making the SSCWeb applications Section 508 compliant. The port of the SSCWeb operational software to the new server (ubatuba) was completed; comparison testing to make sure the programs results were accurate was completed and the sscweb ip address was successfully moved from wharfrat to ubatuba. Staff worked closely with the SSC Operations staff to make sure all database software worked on the new machine. The wharfrat machine (Raytheon leased) is being sent back to the leasing company at the end of July. Staff continue to pursue finding the cause of the calculator servlet problem and fixing it. Staff provided special ingest software for processing a new ascii file for the moon; the operations folks ran the software and successfully ingested data through year 2007. Staff are also pursuing isolating and fixing several user interface issues discovered during the porting effort.

4. CDAWeb Statistics: The statistics include GSFC, RAL and EDC (not ISAS): CDAWeb fulfilled 8,421 plotting requests, 1,875 ASCII listing requests and 290 CDF delivery requests, where each request can contain more than one plot/listing/file; (RAL: 76, 7, 2) and (EDC: 43, 1, 2); there were 121,773 total accesses to the rumba CDAWeb HTTP Server. The anonymous ftp site delivered 96,255 CDF files and 262 software/document files to non-staff users. The "overall" ftp statistics file was updated and can be found at http://cdaweb/cdaweb/logs/FTPaccumulative_record.html. The monthly Web server and ftp statistics files can be found at http://cdaweb/cdaweb/logs. The Web server statistics now include several additional reports, including: "Operating System Report" and "Browser Report".

5. SSC Statistics: Usage statistics from ubatuba, are as follows: There were 30 accesses of the SSC Version 3.0 Main Menu; Locator was executed 9 times; Query was not executed; the Data Base listing was not accessed; the Calculator was not accessed; the File Output option of the system was executed 14 times and the FTP option was executed 21 times.

6. Usage statistics for the Web-based versions of SSC Query and SSC Locator programs are as follows: The query_server was executed a total of 99 times; the tabular_server was executed a total of 1,047 times; the graphical_server was executed 2,351 times for a total of 3,497 accesses, excluding developers. In addition, the

SPOF accessed the systems 10 times; SSC Operations staff accessed the systems 35 times. The SSC Web pages (main page as well as any GIF, user's guide, etc.) were accessed 10,578 times, with 45 accesses by SPOF staff and 108 accesses by SSC Operations staff.

7. Mirror Sites: RAL and EDC are retrieving their provided data and software updates on a regular basis through their FTP accounts. The ISAS/DARTS site has been lagging behind with their pickups and has caused disk space problems on rumba, but a work around was implemented in a timely fashion. Usage statistics were received from two of the three sites this month; these numbers were incorporated into the CDAWeb statistics listed above.

8. Ingest/operational activities: The CDAWeb metadata generator and inventory plot generation software are being executed nightly. As part of this process, any new MAP, IMAGE, LANL, GOES, ACE, FAST and Cluster files are being "ingested" as well. We received a new corrected set of Wind high resolution SWE data files; all but a few have had their bad records, at the end of each file, removed. The process of copying and compressing all of the ISIS2 CDFs from nssdcftp to rumba has begun; its expected to take approximately four months. In addition, the master cdf "notes" Web pages were updated each week.

9. PWG software reengineering effort: Staff reviewed some of the processing Perl software.

10. New SPDF Web site : Staff have tested the site and a few more problems were corrected.

UPCOMING MILESTONES/EVENTS:

1. Staff will assist the ATR with providing documentation and the appropriate level of information to help define meaningful assignments for a new co-op. student.

2. Staff will assess the CDAWeb and SSCWeb pages for Section 508 Web Accessibility compliance and report findings to the government Web development coordinator for the NSSDC.

3. Staff will continue to work with the IMAGE project personnel and develop the appropriate software to be able to display the best "views" of the IMAGE data through CDAWeb.

4. Staff will continue testing and maintenance on CDAWeb and testing/enhancing all of the plotting and listing software.

5. Staff will continue testing, modifying, and documenting the CDAWlib software and associated Web pages.

6. Staff will continue investigating making 3-D orbit plots available through the SSCWEb system.

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Last Revised: *Monday, 12-Aug-2002 15:45:41 EDT [NAB]*

Task Assignment 99-205-00
July 2002

SPACE PHYSICS DATA ACQUISITION AND VALUE-ADDED SERVICES
GSFC ATR - Dr. R. McGuire
Raytheon ITSS Task Leader - Dr. H. Hills
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of this task are four-fold: 1. to support space physics and information acquisition for NSSDC, including support for ingest to the near-line/on-line archive and/or for distribution as CD-ROMs; 2. to support value-added space physics services, including operation of the SSC, creation of new composite space physics data/model products, definition of science user requirements for SSDOO systems and other NSSDC data and information systems, and science-expert support for other efforts such as IACG and SPDS as appropriate; 3. to carry out selected archival research and mission planning activities, including publication of results; and 4. to provide logistics support as directed for working meetings related to SPDS, including travel reimbursement.

SIGNIFICANT EVENTS:

1. DIONAS INGEST:

   a. ISIS: Routine ingest continued at the usual rate.

   b. Pioneer: Task staff tested VMS binary files of Voyager magnetic field data sets migrated by DIONAS to NSSDCFTP and identified problems with record types and lengths. These problems will be removed by reprocessing of the migrated files.

   c. SAMPEX: Routine ingest of all four datasets continued; also the creation of two CDFs for ingest into CDAWeb.

   d. Voyager: Task staff resolved problems of writing Pioneer 15-minute magnetometer data files from DIONAS to NSSDCFTP directories in consultation with B. Rowland and T. Hall-Jackson.

   e. Wind/WAVES: Ingest of the composite CDF from three datasets continued normally; ingest of the PS and GIF files are on hold, to be resumed when the pressure on DIONAS eases.

2. OTHER DATA INGEST:

   a. Ulysses: Ephemeris and gamma-ray data sets were updated for May 2002, respectively. Solar wind data updates were carried out for June 2001.

   b. ACE: The Level 1 CD data set was updated for April 2002 to May 2002.

   c. ACE: Task staff produced ASCII versions of updated ACE magnetometer and solar wind data files from the HDF binary format provided by the ACE Science Center. These files are now all accessible on NSSDCFTP.

   d. Polar/CAMMICE: We received IDL savesets for this new data set. A master CDF was created and software was written using the IDLmakecdf software to produce CDFs. A CDF was created, sample plots were produced, and the CDF was moved to CDAWeb under sp_test for review by R. McGuire.

   e. ISIS-2 Langmuir Probe data were loaded onto nssdcftp and a readme was prepared.

3. Data Set Contacts:

   a. There was still no feedback from U. Iowa on their earlier message to supply us selected VLF data from a few older missions in digital form. However, contact was re-established just after this report period, and we expect to move forward on this during August.

   b. The FAST project scientist (R. Pfaff) was contacted to discuss status and plans of the FAST project team. A FAST survey data set in CDF format was retrieved from the UBC homepage and reviewed. IT turns out that this

is a bare-bones CDF without any attribute information included.

c. Discussions continued concerning the archiving of ISO Space Shuttle spectrometer data that were prepared by G. Germany (MSFC) as part of an AISRP-funded project. He has now sent an example file in IDL saveset format and documentation. The data and data format are being reviewed with help from H. Leckner.

d. The TIMED data center contact person at APL was contacted to discuss the longterm archiving of TIMED data.

4. AMPTE Conversions to ASCII:

a. AMPTE/IRM: Further progress was made in creating a composite (Mag + Plasma) data set from AMPTE/IRM in ASCII, from the taped binary data, and it reached the mass production stage. However, ingest into NSSDCFTP/DLT was put on hold until the pressure on DIOnAS eases; likely for about a year, especially because the Univ. of NEW HAMPSHIRE continues to provide the same data online. This mass production of the ASCII version will wait until all of the binary data has been ingested via DIOnAS, at which time the ASCII data will be generated concurrently. Similarly, the SULEICA data from IRM, which are held as ASCII files on a CDROM, will also be on hold for a few months.

b. AMPTE/IRM/CHEM: Efforts were initiated to convert the AMPTE/CCE CHEM data to ASCII, so as to ingest them into NSSDCFTP and the DLT. In connection with this effort, a CCE investigator (Douglas C. Hamilton of UMD) was contacted to obtain the data, if any, to correct for the (energetic electron) contamination on the CHEM ion data. He has responded that this correction is not a straight forward job, but that he will come up with some thought in a few weeks. Prior to that another CCE/CHEM investigator (Steve Christon) was contacted who had expressed pessimism for the endeavor, simply because there was no contamination monitor in the CHEM experiment. It may well be that ultimately the data users may be advised just to keep an eye on the hot-electron channels in the CCE's Lockheed experiment (HPCE) while using CHEM data.

5. ISIS-1 and -2:

The software was completed for the ISIS2 CDF regeneration. It was decided that we could handle regenerating 4000 CDFs a day. 32244 ISIS2 CDFs were successfully regenerated, compressed and moved to CDAWeb and DIOnAS. The software was then modified for ISIS1 CDF regeneration. A total of 2514 ISIS1 CDFs were regenerated, compressed, and moved to CDAWeb and DIOnAS. Therefore all ISIS CDF regeneration is now complete.

Once completed, the diagnostic software which produced all of the lists of bad data was run successfully showing the new clean copies with matching binaries and CDFs. We now have a complete set of ISIS1/ISIS2 CDFs on nssdcftp. It was decided that these CDFs would only be available thru CDAWeb. These CDFs will be retrieved off nssdcftp and moved to CDAWeb; software was written to perform this task. The newly regenerated CDFs were removed off the RAID disk to avoid duplication since they are already on CDAWeb. This process will also be done by retrieving 4000 CDFs a day from nssdcftp to cdaweb. A list of all CDFs moved to CDAWeb is being provided to B. Rowland and she will be removing them from the RAID disk. All CDFs will be stored on DLT backup.

The Topist program, processing the ISIS-2 binary ionograms to produce electron density profiles, finished processing the last of the ISIS-2 binary files. The ISIS-2 totals are 105,316 files (1.092 GB) generated, from 22 stations, from a total of 122 station-years.

6. Auroral Data

URLs for the auroral data sets (GE-11B, C, D) available through the Space Physics pages were updated and the data set information, previously residing only in the NSD file, was added into the NMC file. The Space Physics pages auroral information URLs now correctly point to the NMC information, and also point to the actual data directories and files newly established this month on nssdcftp. These newly-established files include not only the many files of the three data sets mentioned above provided by Sam Silverman, but also two new data sets provided by Silverman later (through June, 2002).

Seven pages of notes that were provided only on hardcopy were scanned, OCR'd, then edited and installed as text files on nssdcftp. Readme files were generated for the data sets and for an overview of the data sets. GIF images of the four example auroral log pages from GE-11B were made and installed on nssdcftp. Files from the submitted floppy disks were converted to Microsoft Word text documents, and some were also put into RTF format, to preserve certain symbols used such as the degree symbol. R. Post converted one set of 18 files from PC WordPerfect to MS Word RTF so that they could be displayed like the other files.

All of Silverman's files are now available online on nssdcftp. This covers 70 text files, 19 RTF files, 4 gif files, and 4 readme files, all of which were put online during June and July. There remains some improved file organization and some upgrades to readme texts to do for the last data set, namely, the "Silverman catalog of ancient auroral observations, 666BCE to 1951", which may be broken into two different data sets, to separate a more modern data set (from Greenland, Iceland, and the Faroes).

7. Maintenance of NSSDC Information Databases:

   a. The TRF population process continued, with circulation of some of the 3 monthly issues.

   b. For quite some years, the composite IRM tape carried the name "5-s Suprathermal Ions". This has now been changed to 5-s Mag, Pl, PlWave, and keV Ions. The same name and the composite BD will appear against each of 84-088B-02B,-03B,-04B, and -06A datasets, per advice from code 633. The BDs written around 1986 were revised significantly.

   c. After an email from an alert user, the names and IDs for 1971-067A-H, & P in the NMC were found erroneous. The correct names, as provided by the Royal Aircraft Establishment and in the TRW catalog, were entered into NMC.

   d. IDs for the six experiments on NOAA 17 were provided for NMC entry. NOAA 17 was also added to the SSC list of s/c for which ephemerides are maintained.

   e. It was discovered that, in the NMC BD, any text enclosed within <> becomes invisible, i.e., it is not displayed on a web browser. The seven BDs in NMC where this happened were located and corrected.

   f. It was also discovered that the 80-character line limit in the NMC BD field (or any free-text NMC field) makes it impossible to make a hyperlink to many of the data sets in nssdcftp, due to their long pathnames. However, it is believed that in most cases the URL can be pointed to the directory that contains the data set.

   g. At the request of J. King, the Helios Zodiacal Light data sets were reviewed and discussed with R. Post. The question was on the reliability and completeness of the NSSDC-generated ASCII versions of the data sets. There were many unused words at the end of the original record formats, and these were omitted from our ASCII conversions to conserve space. Because the final version is on 8-mm DAT tape, the many original 9-track tapes condensed into a single DAT tape. King was advised that the volumes looked reasonable, although some additional checking will still be done.

   h. An ITM introductory page write-up was prepared for the new NSSDC space physics Web pages.

   i. Various other new entries and updates were added to the information system.

8. SSC Ephemeris

   a. Ephemeris information was created and updated into the SSC's UNIX data base for 32 spacecraft. Files for five spacecraft were updated for the [ACTIVE.IACG.ELEMENTS] directory.

   b. Due to the move to the new machine, appropriate software modules were modified and the new server system was tested for data accuracy.

   c. In the SSC database, there is a file for Moon. It was obtained from Code 500's SLP file around 1992. The time span has now been extended from mid-2002 to end of 2007 by use of a simple code that utilizes the trigonometric series for Moon available in the Astronomical Almanac, rather than seek the help of Code 500 for that SLP file. The Almanac's recipe was found to be quite accurate with respect to the SLP file data.

   d. A few days ago, Code 500 discovered what might be an Earth shadow effect on IMP 8, not predicted by their ephemeris. Code 500 plans to revise the IMP 8 prediction in order to create/reveal such a shadow duration; we will then load the same data into the SSC. (This is a revival of the 1997-99 effort to fix up the IMP-8 predictions.)

9. The draft and final versions of SPX 584 were made available via WWW and FTP. SPX 585 was drafted and loaded online. It carries stories on six launches. As usual, a copy of that was e-mailed to COSPAR. Five WDC SI announcements regarding the launch and assignment of IDs to eight missions were sent by e-mail and posted to the

Usenet News. Five CCSDS IDs were assigned for future mission/simulation telecommunications.

10. MAINTENANCE AND UPDATING ON THE VARIOUS WWW PAGES:

    a. Algorithms and Models on WEB:

        1. Designed new ModelWeb interface home page

        Accesses for this month:
          CGM 645
          IRI model 4486
          MSIS model 570
          IGRF model 491
          TRAP particle model 42
          T89 model 75
          T96 model 186
          Heliospheric Ephemerides 540
          IMP-8 daily position ... 22

    b. COHOWEB and OMNIWEB systems (data and software)

        1. Designed new COHOWeb interface home pages

        Accesses for OMNIWEB: plots/list/scatter: 1704 / 400 / 94 = 2198
        Accesses for COHOWEB: plots/list: 129 / 3 = 132

    c. ATMOWEB system and FTPHelper (graphical browsing & retrieve FTP data)

        1. Added Explorer32 to FTPBrowsing/Atmoweb
        2. Added ISIS-2 to FTPBrowsing/Atmoweb
        3. Updated many FTPBrowser home pages, specify time as default value

        FTPBrowsing accesses for this month (plotting/listing): = 206 / 0 = 206
        ATMOWeb accesses for this month (plotting/listing):   132 / 8 = 140

    d. FTP site (System software, data ingest, creation of CD-Rs)

        1. Updated many aareadme files

    e. Cosmic and Heliospheric pages and services

    f. Geomagnetic and Magnetospheric Models through network

    g. Space Physics home page

1. Designed new set of main space physics home pages (with help of summer student) -- effort continues

2. Edited and Transferred all Cosmic and Heliospheric script files and html from old nssdc to a new NSSDC machine.

11. Support for OSO-8 data transfer: Support was provided to B. Brown in dealing with the OSO-8 data and documents on NDADS. Updated OSO8 information was entered into the interim transfer data base, and a listing of the 7 datatypes was sent J. King for approval and moving into the controlled transfer data base. The document datatypes will not be transferred via this method, but will be moved into NSSDC's controlled digital document library. Pending King's approval, and NOST's assignment of IDs, the data entry will then be moved into the controlled database so that the ingest via DIOnAS can be performed. These data will go into the DLT archive, but will not be maintained online.

12. Support and Use of SKTEDITOR and MAKECDF:

Work started on creating a new master CDF for the ISEE-1 solar wind electron data set (-02E) provided by R. Fitzenreiter several years ago, but with no documentation. In discussion with Fitzenreiter it was agreed that we would make new CDFs using only selected parameters from the original data set. He provided additional descriptive information for the master CDF. His answers to additional questions, and study of the instrument description publication, provided clarity in a few other areas, and the work on the master is ready to proceed further, using SKTEditor. Further work was postponed to work on the auroral data sets, for which we had a new request.

13. Meetings, Presentations, and Publications

    a. A review of a manuscript for Advances in Space Research was finished and returned to the editor.

    b. A staff member was interviewed by telephone during a Minneapolis radio talk show Saturday, July 20, on the anniversary of the first lunar landing. They had contacted NSSDC to locate someone who had been involved with the Apollo program.

    c. A paper was written and submitted to Advances in Space Research describing data sets that have become newly available at NSSDC as part of two AISRP-funded data restoration projects.

    d. A paper was written and submitted to Advances in Space Research describing the most important improvements of the IRI-2001 model and their effects on IRI applications. An extended version with more examples and figures will be published in the proceedings of the ICTP Task Force Activity.

    e. An abstract was submitted for the COSPAR meeting in Houston, Texas this October reporting about the collaborative work with two African colleagues on the improvement of IRI at equatorial latitudes.

REQUEST HIGHLIGHTS:

    a. Twelve requesters were responded to by email with respect to science data, SSC, CCSDS or WWAS/SPX.

    b. A requester, Dr. Hubert (Observatoire de Paris), had misunderstood an e-mail, and had not replied selecting a desired dataset to be installed online in nssdcftp. He contacted us again as his deadline neared, after which the ISEE2 -01F data set was quickly converted from IBM EBCDIC blocked to unblocked ASCII format and loaded into nssdcftp. Also provided were the documentation and the provider's cover letter (with notes about changes), as scanned, OCR'd, and edited, plus a short readme. These were completed and he was notified by e-mail the day before his deadline.

    c. R. Post inquired about 10.7-cm radio flux data for a requester. Within a few minutes, a URL was provided for a Canadian radio observatory that provides a comprehensive long-term database of 10-cm data.

    d. Due to a request, extensive work was done to organize and bring all of S. Silverman's many auroral observation files to online access (except for the large set of hardcopy of hand-written log sheets). This included two new data sets that had been received but whose processing into the archive had been deferred. The request was received during the AGU Spring meeting.

ACTIVITY LOG:

The NSSDC models sites on anonymous ftp and on the Web continue to be very popular:

2001	ftp RAID	Model	atm	geom	ion	rad	solar	WWW CGM	IRI	MSIS	IGRF	TRAP	hpage
Nov	49425	4175	854	627	2076	260	202	977	2333	13066	612	366	66026
Dec	36022	3736	701	613	1874	257	175	6485	1001	3599	304	125	61423
Jan02	154622	4926	968	819	2377	324	273	1505	3399	8270	454	244	69610
Feb	116199	7092	1078	659	3651	619	525	1106	2322	41633	475	621	71078
Mar	164875	10177	1869	1462	4682	640	740	717	1659	5257	528	161	73074
Apr	245162	6863	1134	884	3665	353	319	899	2220	1162	1266	122	74803
May	275487	4426	754	537	2208	305	261	1050	8238	944	1346	93	76584
Jun	133327	6892	891	709	3693	388	371	4741	2641	1055	702	84	78218

===

----- ISIS -----------

Month	Files	GBy	Total	WWW	I	AE	Aer	DE	Exp	Hin	I/A	OGO	SM	SNOE
Oct	3,485	2.0	516.5	5178	I									
Nov				5339	I	886	12	1389	5	9	16	6		48
Dec					I	18	7	61	6	41	64	1		1937
Jan02	26,410	15.1	531.6	5640	I	1396	4	3154	11	44	13	47	379	29035
Feb	10,342	6.1	537.7	5736	I	25	5	371	3	22	836	8	29	4176
Mar	20,492	12.0	549.7	5917	I	179	18	48	99	83	78	27	17	14263
Apr	17,460	9.2	558.9	6057	I	50		215	15	5	22	1	5	16365
May	19,126	15.4	574.3	6257	I	52	9	271K	34	30	15	19	213	2

Month	Files	GBy	Total	WWW	I	AS	A2	DE	EX	I1	O6	ATW	I	AE	DE	EX	HI	IA	O6	SM	SO
Jun	16,552	9.5	583.8	6451	I	2	0	1	0	0	0	48	I	25	182	622	25	32	7	1	26

e. WWW file and plot accesses during May 2002 (and the yearly totals)
for interplanetary COHO-related data from COHOWeb, CDAWeb, and NSSDCFTP:
Deep Space (Ulysses, Voyager, Pioneer, etc.): 12,211 {2002 Total: 36,911}
Geospace (IMP-8, Prognoz, ACE, WIND, SOHO): 57,214 {2002 Total: 199,363}

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Task Assignment 99-301-00
July 2002

COMPUTER SYSTEMS MANAGEMENT TASK
GSFC ATR - C. Barrett
Raytheon ITSS Task Leader - J. Jacobi
Raytheon ITSS Group Manager

TASK OBJECTIVE: The objectives of this task are to provide systems analysis and technical support to the operational computer activities of the NSSDC; to maintain existing hardware and system-level software to ensure the optimal performance and utilization of its resources and connectivity to its computing sites; to integrate new hardware and system-level software into existing systems to achieve upgraded capabilities and state-of-the-art facilities; to administer specialized software such as data base and optical disk management systems; and to provide users with the necessary documentation, training, and assistance so that NCF resources are fully utilized.

SIGNIFICANT EVENTS:

- System staff continues to investigate a problem with Ultrium tape drive.

- System staff began learning about Beowulf clustering technologies in preparation for the arrival of a Code 600 Beowulf cluster.

- System staff re-introduced the DLT stacker into the production backup scheme.

- System staff responded to several inquires from the new CIO concerning our IT resources.

- System staff installed/updated Apache Web server and Tomcat server on host java.

- System staff installed new Solaris host named guaruja for SSC development work.

- Staff continued to perform routine system administrative duties, including backups, application of stupid and confusing software upgrades and patches, providing assistance to users, and maintaining the IP spreadsheets and equipment database.

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Curator: *Natalie Jaquith*
Responsible Official: *Dr. Joseph H. King, Code 633*
Last Revised: *Thursday, 15-Aug-2002 14:29:59 EDT [NAJ]*

Task Assignment 99-302-00
July 2002

SYSTEMS NETWORKING AND SMALL SYSTEMS
GSFC ATR - G. Goucher
Raytheon ITSS Task Leader - R. Dunlap
Raytheon ITSS Group Manager

TASK OBJECTIVE: The objective of this task is to provide network engineering support to Code 600.

SIGNIFICANT EVENTS:

• Staff continued the upgrade the Run-On-Request submission system by adding a tool to prepare solar wind data (magnetic fields and plasma) from the ACE satellite out of NSSDC's CDF files based on dates requested by the user.

• Staff added browsing tool to view recent images created by the realtime BATSRUS simulation. Event movies can now be created on short notice and some examples have been posted on the Web.

• Staff has begun to prepare simulations of the events of April 14-20, 2002 in preparation for the August 7,8, 2002 collaboration workshop at JHU-APL.

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Curator: Natalie Jaquith
Responsible Official: Dr. Joseph H. King, Code 633
Last Revised: Monday, 12-Aug-2002 15:02:33 EDT [NAB]

Task Assignment 99-303-00
July 2002

NSSDC COMMON DATA FORMAT (CDF)
GSFC ATR - D. Han
Raytheon ITSS Task Leader - M. Liu
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of this task are to carry out computer science research, develop computer software and provide user support for the NSSDC Common Data Format (CDF).

SIGNIFICANT EVENTS:

1. Modifications were made in distribution package to support Fortran (f77) under the Windows running Cygwin.

2. A new set of Java APIs was added to the CDF. They provide the methods to read/write a record for a group of variables.

3. Curses is tested under the Mac OS X. A couple of CDF tool programs requires this package for screen handling capability. A separate package is downloaded and tested.

4. Twelve user requests/questions were received this month.

CONCERNS AND PROBLEM AREAS:

1. The GZIP compression/decompression option is turned off for 16-bit DOS/Windows 3.x due to its memory constraint.

2. A unusual problem occurs with the older Microsoft C 7.00 compiler in one of the EPOCH parsing routines on DOS/Windows 3.x. It occurs while using the floating point functions and type casting. It is suspected that the Microsoft executables may be getting too large and will require memory overlaying.

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Curator: <u>*Natalie Jaquith*</u>
Responsible Official: *Dr. Joseph H. King, Code 633*
Last Revised: *Monday, 12-Aug-2002 15:02:33 EDT [NAB]*

Task Assignment 99-304-00
July 2002

PLES
GSFC ATR - N. James
Raytheon ITSS Task Leader - Dr. D. Williams
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of this task are to maintain data bases and metadata (NMC, WWW) for planetary, Earth sciences, and selected astrophysics data (HEASARC, EUVE, HST), provide request support and coordinate updates of user interfaces, coordinate WWW activities, support internal and external data base users, assure data set quality, coordinate planetary data acquisition and Earth science data transition, support educational activities, and coordinate publications.

SIGNIFICANT EVENTS:

- The NSSDC WWW server had a total of 8,939,211 error-free accesses logged for July, a decrease of 6.5% compared to June.

- Task staff responded to over 130 e-mail queries and phone calls from external users and the Request Office.

- Task personnel wrote and tested a JSP (Java Server Page) application which allows a user to specify two geographic locations on one of several solar-system terrestrial bodies and calculate the distance between them. The application will be deployed on the nssdc Web server in August.

- Task member opened eight new experiment records for the MESSENGER mission.

- Task staff rewrote the description of the "Outer Planets Fields and Particles" CD-ROM set (PSFP-00256) in JEDS.

- Task personnel opened a new data set for the NEAR NLR DVD.

- Task member reviewed solar system chapters and lesson plans for the Smithsonian Earth in Space book.

- Task staff added two new books to the online book page.

- Task personnel added two newly discovered near Earth asteroids to the NEO fact sheet.

- Task staff updated all "alt" tags on planetary pages on the local server to comply with section 508 requirements.
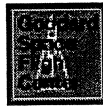
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Curator: Natalie Jaquith
Responsible Official: Dr. Joseph H. King, Code 633
Last Revised: Monday, 12-Aug-2002 15:02:33 EDT [NAB]

Task Assignment 99-305-00
July 2002

NASA SCIENCE OFFICE OF STANDARDS AND TECHNOLOGY (NOST)
GSFC ATR - D. Sawyer
Raytheon ITSS Task Leader - J. Garrett
Raytheon ITSS Group Manage

TASK OBJECTIVE: The objective of this task is to maintain and expand the NOST so that it can effectively respond to the standards needs of the NSSDC community.

SIGNIFICANT EVENTS:

NOST Archiving Tools Suite - Staff has

- Continued working on the Multifile Package Group Analyzer (MPGA) focusing on the data file formats and attributes, and their functions throughout the utility's lifecycle.
- Installed and ran Xerces C++ XML Parser and Creator test programs. Compiled the API library for the development platform, only to run into problems identified in the installation FAQ for this product. Requested that the PBC to do various upgrades to correct problems.
- Began to rebuild the MPGA main program, named the "Launcher", in C++. Several fairly routine updates to the existing support libraries need to be performed to allow this to happen.
- Continued implementing the generic components in the MPGA, focusing on efficiently handling the multi-file input data sources
- Studied XML core, XML Pipelining, and XML Schema
- Generated DTDs for the input and configuration documents to be used with the MPGA
- Finalized a working input list document specification (ISD-XML)
- Developed draft non-XML formats for the various input data files as a backup
- Continued work on MPGA Startup and Operations Guide
- Continued work on other Requirements Specification Documents

ISO Data Archiving - Staff has

- The OAIS Reference Model document has been installed on the CCSDS and the ISO Archiving Web sites.

CCSDS On-Line Information System - Staff has

- Continued updates to the schedule and logistics information for the Fall set of CCSDS meetings.
- Working with current contract holder to maintain the current CCSDS.ORG Web site and transition to the new Web site designed by the new contractor.
- Continued maintenance of Docushare area of the updated Web site.
- Posted the following new documents to the Web site.
    - o CCSDS 650.0-B-1: Reference Model for an Open Archival Information System (OAIS). Blue Book (Standard). Issue 1. January 2002.
    - o CCSDS 232.1-R-1: Communication Operation Protocol-1. Red Book (Draft Standard). Issue 1. July 2002.
    - o CCSDS 910.0-Y-1: Space Link Extension Services - Executive Summary. Yellow Book (Administrative Report). Issue 1. April 2002.
    - o CCSDS 910.3-G-2: Cross Support Concept - Part 1: Space Link Extension Services. Green Book (Technical Report). Issue 2. April 2002.
    - o CCSDS 727.0-P-1.1: CCSDS File Delivery Protocol (CFDP). Pink Pages (Draft Standard Updates). Issue 1.1. April 2002.
- Monitored the log files for the CCSDS.ORG WWW-server for any indications of problems or security incidents and continued generating the required data to develop monthly statistics.
- Installed Panel 3 Space Link Extension (SLE) status and review materials on CCSDS.ORG Web site. Awaiting notice of approval by Panel 3 Chairmen that they can be linked into Panel 3 Web page.
- Participated in Web development team meetings with personnel from the current contractor. Comments received on the new Web site design were discussed and design updated were investigated.

CCSDS Standards - Staff has

- Participated in the NASA Data Standards Steering Council (DSSC) meeting.
- Reviewed several iterations of GSFC and JPL proposals for CCSDS Reorganization. Participated a GSFC CCSDS Group meetings and GSFC-JPL teleconferences to discuss these proposals and budget priorities.
- Participated in GSFC Standards Coordination Group meeting at end of previous month.

Goddard Technical Standards Coordination - Staff has

- Participated in a GSFC Technical Standards meeting.
- Updated the Web site to detail a number of completed and upcoming GSFC reviews of standards.

STATISTICS: CAOIS: As of 31 July 2002, there were 438 Data Description registration numbers assigned. Of these about 30 of the Data Description registration numbers are reserved for NSSDC use during the Cygnet migration, 45 are reserved for IMAGE ingest, and 26 for ISIS ingest. Data Description Packages for these must be generated.

UPCOMING MILESTONES/EVENTS:

NOST Archiving Tool Suite: Staff will

- Identify XML grouping criteria structure and requirements for analyzing data files and determining groups and attributes.
- Identify XML list file format and it capabilities.
- Finalize and document MPGA System requirements.
- Continue Coding the MPGA.

ISO Archiving Standards: Staff will

- Update the Web site to provide information on new archiving thrusts.
- Update Web site with information on upcoming international meeting.

CCSDS XML Group: Staff will

- Continue low level of support for possible CCSDS XML prototype effort.
- Continue work to determine possibility of XML Workshop at upcoming CCSDS Workshop. Support workshop planning as necessary.

CCSDS Standards: Staff will

- Continue to provide comments on new drafts of the CCSDS Concept of Operations, CCSDS reorganization, and NASA CCSDS budgeting priorities and the DSSC reorganization.

Goddard Technical Standards Participation: Staff will

- Participate as needed in the GSFC Standards Working Group, the NASA Data System Standards Council and the GSFC Standards Review Boards.
- Continue updates for the Web site for GSFC Standards Coordination.

OLIS: Staff will

- Participate in upcoming CCSDS.ORG Web site redesign meetings as requested. Develop additional proposals for improving the CCSDS Web site as required.
- Add additional documents to the CCSDS Web site as they become available from the CCSDS editor.

CAOIS: Staff will

- Register new data description packages as they are submitted. Note that Cygnet migration, IMAGE ingest and ISIS ingest descriptions still need to be submitted.

Formats Evolution Process - Staff will

- Updating the FEP Web site if any new material is submitted.

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Curator: *Natalie Jaquith*
Responsible Official: *Dr. Joseph H. King, Code 633*
Last Revised: *Monday, 12-Aug-2002 16:49:52 EDT [NAB]*

Task Assignment 99-306-00
July 2002

INFORMATION (METADATA) SYSTEMS DEVELOPMENT AND UPGRADES
GSFC ATR - Dr. J. Thieman
Raytheon ITSS Task Leader
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of this task are to define and develop information systems and the interfaces thereto, maintain these systems and interfaces and support the generation of reports therefrom, and recommend and participate in the planning of upgrades to necessary support systems and software as appropriate.

SIGNIFICANT EVENTS:

• Wrote the insert stored procedures (and the equivalent "set" JDBC code) for the following tables in JIN: MEDIA, MED_RELATIONS, MED_TAPE.

• Added a new method to the Assigned_ID class to accept the db connection as an argument.

• Wrote triggers to: (1) generate new media numbers for the MEDIA table; and, (2) that automatically removes the newly created media numbers stored in the ASSIGNED_ID table.

• Completed the functionality in JIN: (1) to display tape information and add a tape to the database, including validation; and, (2) for error handling.

• Completed the first UML model for both the sign-in and sign-out use cases.

• Investigated problems reported from an external user regarding the identification of spacecraft with IDs like 1971-061.

• Fixed several records in PER table with a null for affiliation. (Task request #1014)

• Began debugging problem with missing datasets in Filex and Satx. (Task request #1006)

• Two staff members attended the "Web Component Development Using Java[tm] Technology" course at Sun Microsystems.

• Task staff worked with System personnel to reconfigure the Apache and Tomcat servers running under the decaf IP address.

• Met with other code 630 personnel to define requirements for the integration of NIMS with DIOnAS.

UPCOMING MILESTONES/EVENTS: Work will continue on JIN.

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Task Assignment 99-307-00
July 2002

SUN-EARTH CONNECTION EDUCATION FORUM (SECEF)
GSFC ATR - Dr. J. Thieman
Raytheon ITSS Task Leader - Dr. S. Odenwald
Raytheon ITSS Group Manager - L. Mayo

TASK OBJECTIVE: The objective of this task is to provide administrative support of the SECEF managers and assistance in preparing for educational outreach events, seek opportunities to leverage SECEF activities for broad national impact, and assist in publicity for the SECEF by developing content for a Web site and publications.

SIGNIFICANT EVENTS:

• Staff is coordinating the next Sun Earth Day, March 20, 2003.

• Staff is planning for 2004 Venus Transit.

• Staff coordinated the visit of five AIP student interns with Space Scientists at Goddard.

• Staff participated in a planning meeting of the AESP National Conference that would be held at Goddard in September 2002.

• SECEF staff and mission leads at Goddard started reviewing the Living with a Star GEMS guide.

• Staff sent materials and updated the Space Science Access list for the NASA OSS booth at the IPS conference in Wichita, Kansas.

• Staff sent materials and display to the Astronomical League Conference in Salt Lake City, Utah.

• Staff prepared for OSS Education Council meeting.

• Staff prepared for SECEF BiCoastal meeting at Goddard.

UPCOMING MILESTONES/EVENTS:

• Staff will continue planning for the 2003 Sun-Earth Day.

• Staff will continue planning for Venus Transit 2004.

• Staff will continue with scheduled EPC meetings.

• Staff will support SECEF teleconferences.

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Curator: Natalie Jaquith
Responsible Official: Dr. Joseph H. King, Code 633
Last Revised: Friday, 16-Aug-2002 11:09:09 EDT [NAJ]

Task Assignment 99-312-00
July 2002

ANALYSIS SUPPORT FOR THE IMAGE MISSION
GSFC ATR - Dr. J. Green
Raytheon ITSS Task Leader - L. Garcia
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of the Analysis support for the IMAGE Mission task are to maintain and update local copies of the IMAGE software suite, create RPI data analysis software, and to create software to be used in correlative studies between IMAGE detectors and between IMAGE and other missions. This task will also support the synthesis of data and theory in the study of Earth's magnetosphere through creation of unique data products and services. This task will make available appropriate documentation for all of these objectives and will support the IMAGE Science Center Web site.

SIGNIFICANT EVENTS:

• Staff added publications to the IMAGE Science Center publications page.

• Staff installed UDF software package on Mac OS X with assistance from IMAGE team members at the University of Maryland. Installed RPI software package (BinBrowser, PostPro1 and EdRPI) on Mac OS X with assistance of IMAGE team members at the University of Massachusetts, Lowell. Both of these installations are the first attempts within the IMAGE-RPI team of running these analysis software on Mac OS X. It is anticipated that several members of the team will be moving over to this operating system shortly and will need to know that these software will perform correctly.

• Staff updated fuview software package. Fuview is an IDL program now running on rpi (Solaris machine). Fuview allows for the analysis of IMAGE-FUV data.

• Assisted summer student intern with his project to compile a database of electron density profiles from all IMAGE-RPI dynamic spectrograms. This project requires the Specwidget IDL software to sample the spectrograms.

• Staff continued responding to reviewer's comments and revising paper on IMAGE RPI and EUV correlations for submission to the Journal of Geophysical Research.
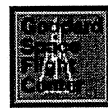

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Curator: *Natalie Jaquith*
Responsible Official: *Dr. Joseph H. King, Code 633*
Last Revised: *Monday, 12-Aug-2002 15:02:33 EDT [NAB]*

Task Assignment 99-313-00
July 2002

COMMUNITY COORDINATED MODELING CENTER
GSFC ATR - Dr. M. Hesse
Raytheon ITSS Task Leader - M. Kuznetsova
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: This task will provide science and software support for Community Coordinated Modeling Center (CCMC). Specific support includes developing and testing of simulation codes for space weather models, performing simulations of realistic space weather events, providing visualization and analysis software, performing comparison of modeling results to satellite measurements, performing research in space plasma physics.

SIGNIFICANT EVENTS:

• Staff continued the upgrade the Run-On-Request submission system by adding a tool to prepare solar wind data (magnetic fields and plasma) from the ACE satellite out of NSSDC's CDF files based on dates requested by the user.

• Staff added browsing tool to view recent images created by the realtime BATSRUS simulation. Event movies can now be created on short notice and some examples have been posted on the Web.

• Staff has begun to prepare simulations of the events of April 14-20, 2002 in preparation for the August 7,8, 2002 collaboration workshop at JHU-APL.

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Last Revised: *Monday, 12-Aug-2002 15:02:34 EDT [NAB]*

Task Assignment 99-315-00
July 2002

Automated Vulnerability Scanning and Data Integration/Reporting System DB Repository and Reporting/Publishing Sub-task
GSFC ATR - R. Schneider
Raytheon ITSS Task Leader - D. Baldridge
Raytheon ITSS Group Manager

TASK OBJECTIVE: This task will provide automated uploading of ISS scan database files into a central composite database. A user interface for generating vulnerability reports will also be provided.

SIGNIFICANT EVENTS: Work continues to be stopped.

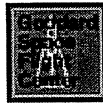**UPCOMING MILESTONES/EVENTS:** Waiting for direction from ATR to continue effort.

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Task Assignment 99-316-00
July 2002

Solar Nebula SiO
GSFC ATR - J. Nuth
Raytheon ITSS Task Leader - A. Ali
Raytheon ITSS Group Manage

TASK OBJECTIVE: The objective of this study is to carry out research and analysis of SiO cluster mass distributions from data obtained using the molecular beam apparatus located at Penn State University. This experimental setup produced a unique data set on the cluster distribution of SiO clusters produced by partial condensation following laser evaporation. Future experiments will concentrate on extending these basic experiments to isotopically labeled systems using pure Si[28] and enriched oxygen isotopes. These experiments are highly relevant to the origin of oxygen isotopic anomalies in the early solar nebula and present a very complex analytical problem.

SIGNIFICANT EVENTS:

Staff continued data analysis of experiments on oxidation of (SiO)n clusters by freeO2 molecules. The data suggests that nucleation of SiO involves effects of complex chemical kinetic processes.

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Last Revised: *Tuesday, 13-Aug-2002 11:17:22 EDT [NAB]*

Task Assignment 99-317-00
July 2002

COMPUTER SYSTEMS MANAGEMENT TASK
Raytheon ITSS Group Manager

SIGNIFICANT EVENTS: Staff became familiar with task requirements by reading task-related documentation such as the Requirements for Polar, Wind, and Geotail Spacecraft Operations and Ground System Data Handling, Polar-Wind-Geotail Reengineering Concepts, etc.

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Responsible Official: Dr. Joseph H. King, Code 633
Last Revised: Thursday, 15-Aug-2002 14:33:44 EDT [NAJ]